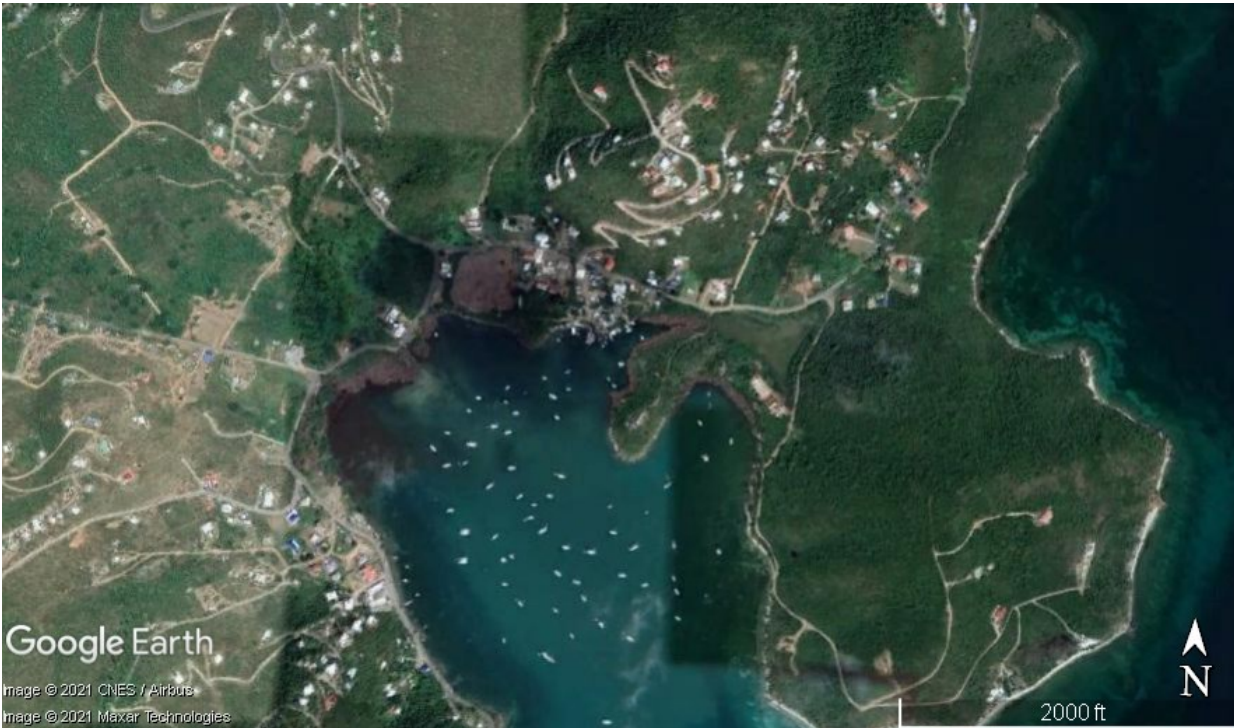


ENVIRONMENTAL ASSESSMENT REPORT FOR SEAGRAPE EQUITIES, DBA JOHNNY LIME, LLC ESTATE EMMAUS PARCEL #8-1

CORAL BAY, ST. JOHN U.S. VIRGIN ISLANDS



Prepared for:

**THE OFFICE OF COASTAL ZONE MANAGEMENT
DEPARTMENT OF PLANNING AND NATURAL RESOURCES**

Prepared by:

**SEAGRAPE EQUITIES, LLC
BIOIMPACT, INC.
MATRIX DESIGN STUDIO**

JUNE 2021

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APPENDIX 1

Qualification Statements of Preparers

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Specficiation for Hydro-Action 500GPD

1.0 NAMES AND ADDRESS OF APPLICANT

Seagrape Equities LLC

Db/a:

Johnny Lime

P.O. Box 1735, Cruz Bay, U.S. Virgin Islands 00831

2.00 LOCATION OF PROJECT

The proposed project is located on Parcels 8-1 Estate Emmaus, No. 2 Coral Bay Quarter, St. John, U.S. Virgin Islands. The project site is 635ft north of Coral Harbor, Coral Bay, located at 18.347938° N latitude and 64.711394°W longitude.

The Location and Agency Review Map in Figure 2.00.1 below depicts the areas of Coastal Zone Management First Tier jurisdiction.

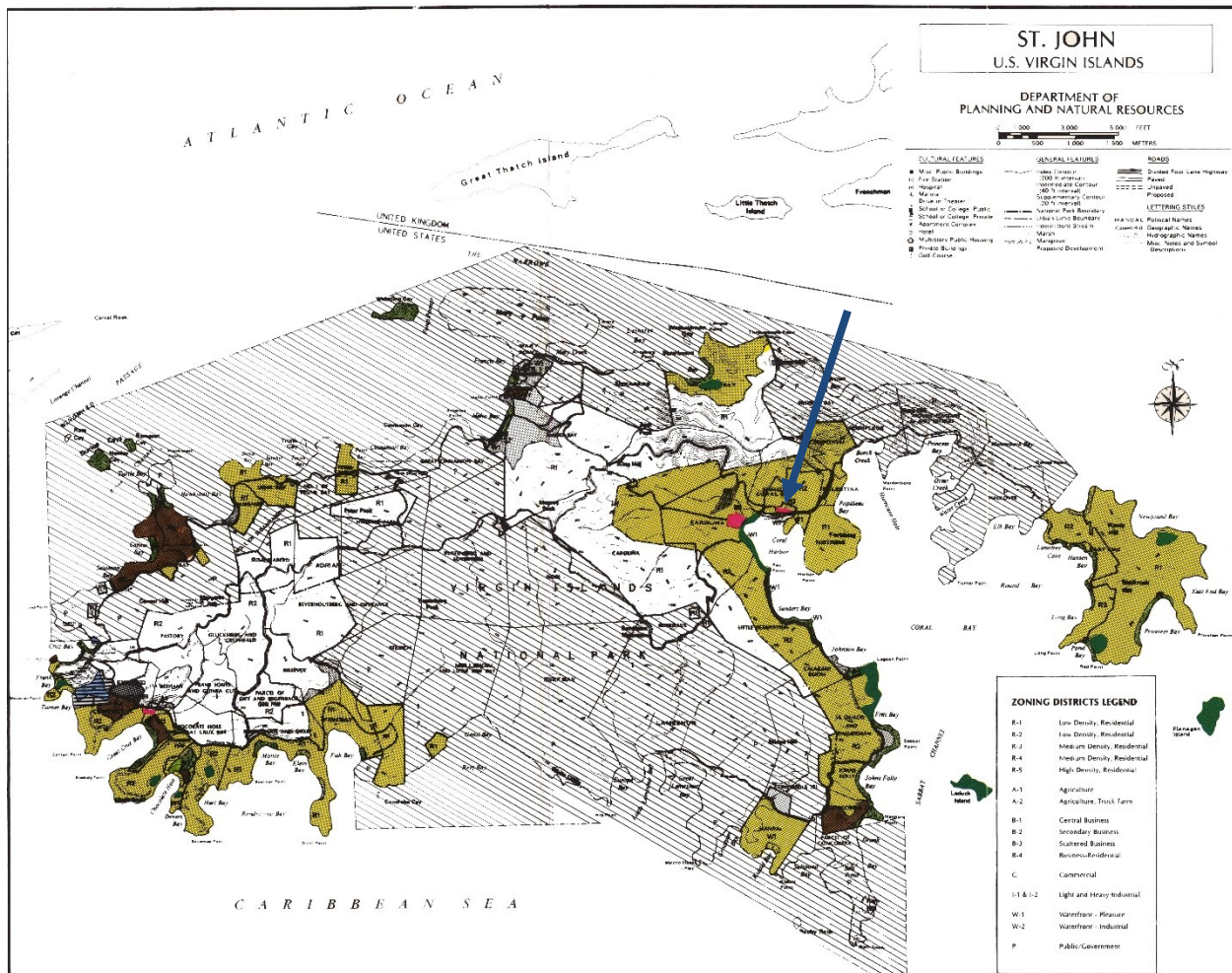


Figure 2.00.1 – Location and Agency Review Map. The areas in color, which include the proposed project site fall under the jurisdiction of D.P.N.R.'s Division of Coastal Zone Management.



Figure 2.00.2 – Location of the proposed project in Coral Bay St. John.

3.00 ABSTRACT

Johnny Lime, LLC proposes to construct a new two story mixed use building on Parcel 8-1 Estate Emmaus, Coral Bay to house a 2794sf restaurant on the first floor and 5 short term rental residential units, and a storage space on the upper floor. The existing 3 story building will remain.

4.00 STATEMENT OF OBJECTIVES SOUGHT BY THE PROPOSED APPLICATION

The objective of this application is to permit the construction a new building to house a restaurant, short term rental units and a storage space.

5.0 DESCRIPTION OF PROJECT

5.01 Summary of Proposed Activity

The project proposes grading and excavation as necessary to construct cisterns and building footings for the new 2794sf two story building, a new 4 car parking area, a retaining wall and the installation of waste-water treatment. The two story building will be constructed with exterior cast concrete walls on the lower level and pressure treated wood framing structure for the walls and roof of the upper level. Floor structure on both levels will be reinforced concrete slabs.

5.01.a Purpose of Project

The purpose of the application is to build a new mixed use two story building on Parcel 8-1 Estate Emmaus, St. John.

5.01.b Presence and Location of Any Critical Areas and Possible Trouble Spots

The site has been completely altered and no natural areas will be impacted.

The property is only 350ft from Coral Bay and therefore there is the potential for the introduction of elevated nutrients from waste water into the sea through leaching. The proximity of the site to the sea also creates a potential of contaminants and nutrients reaching the site due to runoff.

In order to minimize potential impacts irrigation from the Wastewater treatment will be done at the farthest distance from the sea on the property.

5.01.c Method of Land Clearing

The area of construction is very limited, and current is a mown lawn with limited landscaping. Cleared will be done by hand. Plants and existing small landscape trees that are removed will be used for mulch on the site in new landscape areas.

5.01.d Provisions to Preserve Topsoil and Limit Site Disturbance

Site clearing will be limited to those areas which are necessary for the development of the new parking area, retaining wall, storage area and building. All excavated topsoil will be saved for landscaping on the site. Stock piled material will be surrounded by silt fencing.

5.01.e Erosion and Sediment Control Measures to be Implemented

Silt fencing will be installed on the site prior to any site disturbance. The fencing will be re-enforced and will be properly toed in. A construction entrance will be created at the entrance into the upper portion of the site so that vehicles engaged in earthwork activities do not track soil onto the roadway.

5.01.f Schedule for Earth Change Activities and Implementation of Erosion and Sediment Control

Measures

The Sequence of soil disturbing activities are as follows:

- Construct a stabilized construction entrance
- Install silt fencing around perimeter of work area
- Hand clear building area
- Excavate and Grade building footings, cisterns and parking areas
- Place silt fence around Stock Piles
- Construct building foundations and cisterns
- Build structure
- Complete parking area
- Install permanent landscaping and planting
- Remove erosion and sediment control and stabilize any area disturbed by their removal

5.01.g Maintenance of Erosion and Sediment Control Measures

The development site will be inspected for erosion issues daily and after each rainfall greater than 0.5 inches. A rain gage will be on site to measure rainfall amounts.

5.01.h Method of Storm Water Management Post Construction

The proposed project will alter the current drainage patterns. The drainage will be redirected to drain efficiently and match the current dispersion patterns.

5.01.i Maintenance Schedule for Storm Water Facilities

No storm water facilities will be installed.

5.01.j Method of Sewerage Disposal

The restaurant wastewater treatment is a self-contained, extended aeration, aerobic treatment system utilizing the activated sludge process. This wastewater treatment is custom engineered per specs.

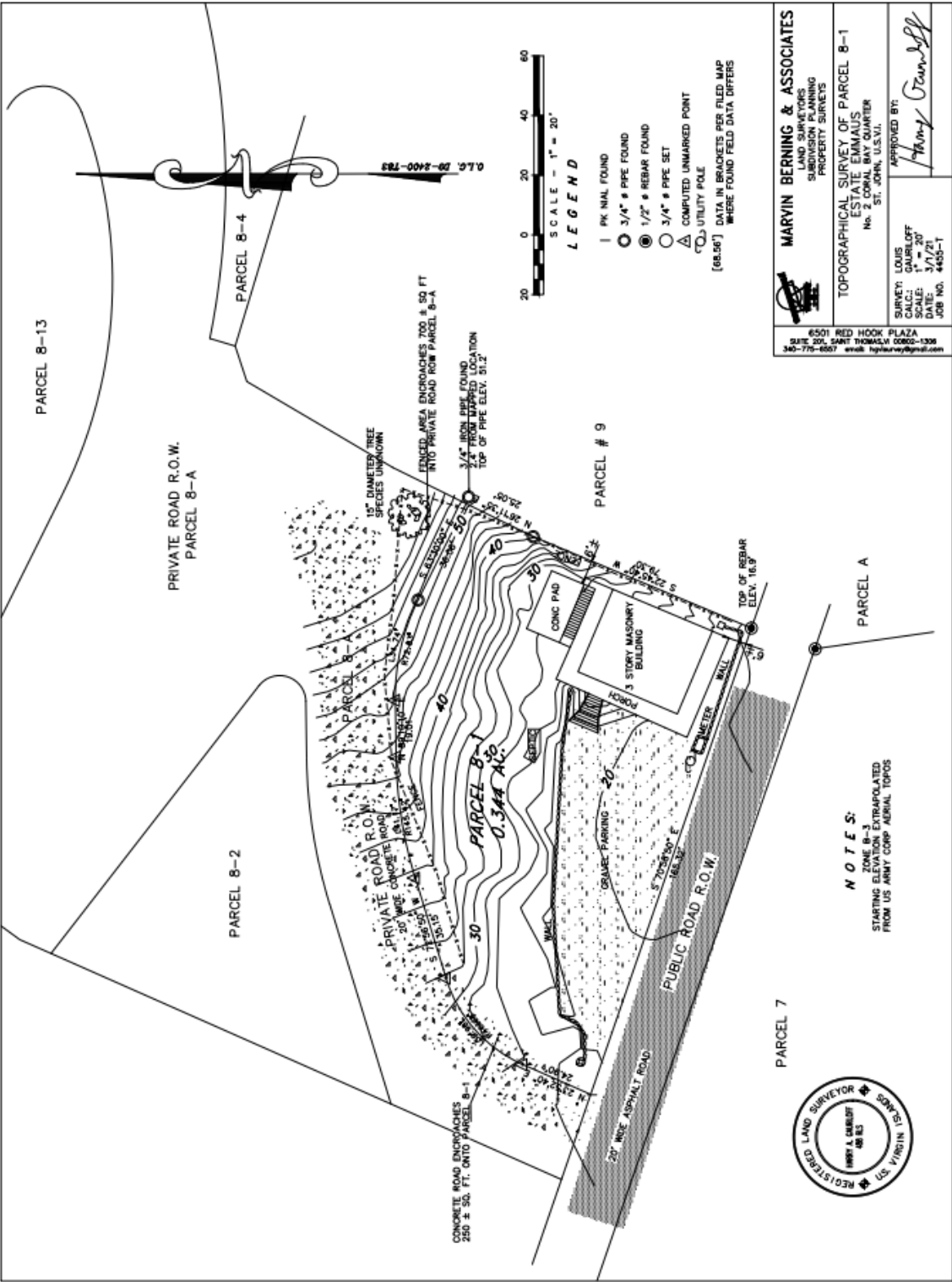
The effluent will be discharged into an engineered leach field.

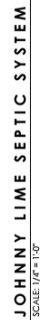
The residential wastewater treatment will be an efficient prefabricated Hydro-Action 500gpm 3 tank wastewater treatment system and the effluent will be used for watering landscape.

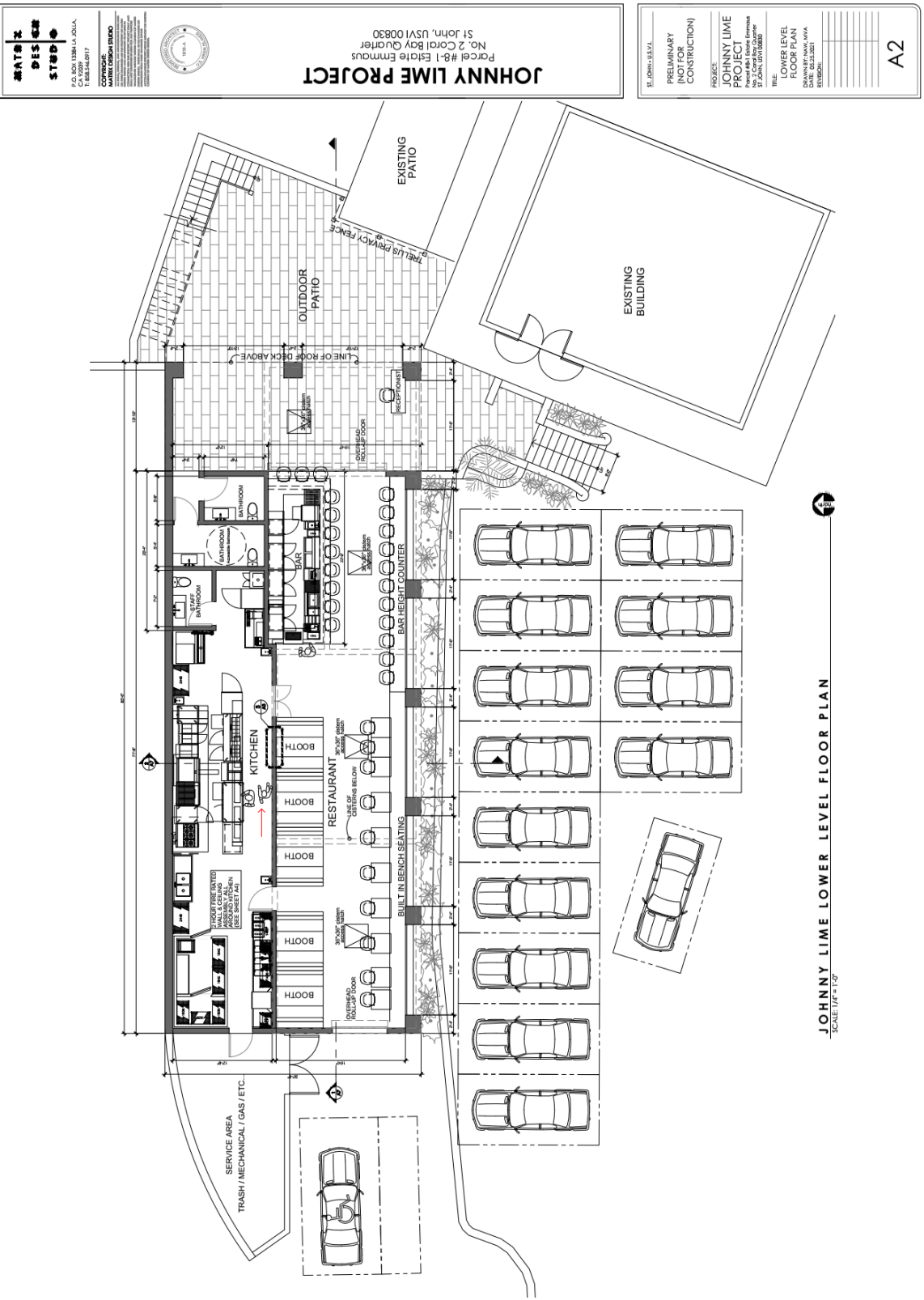
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MARKET DESIGN STUDIO

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SUITE 100
DENVER CO 80202
TEL: 303.733.1000

JOHNNY LIME PROJECT

Parcel #8-1 Estate Emmaus
St John, USVI 00830

ST JOHN - USVI

PRELIMINARY
(NOT FOR
CONSTRUCTION)

PROJECT

JOHNNY LIME
PROJECT

Parcel #8-1 Estate Emmaus
St John USVI 00830

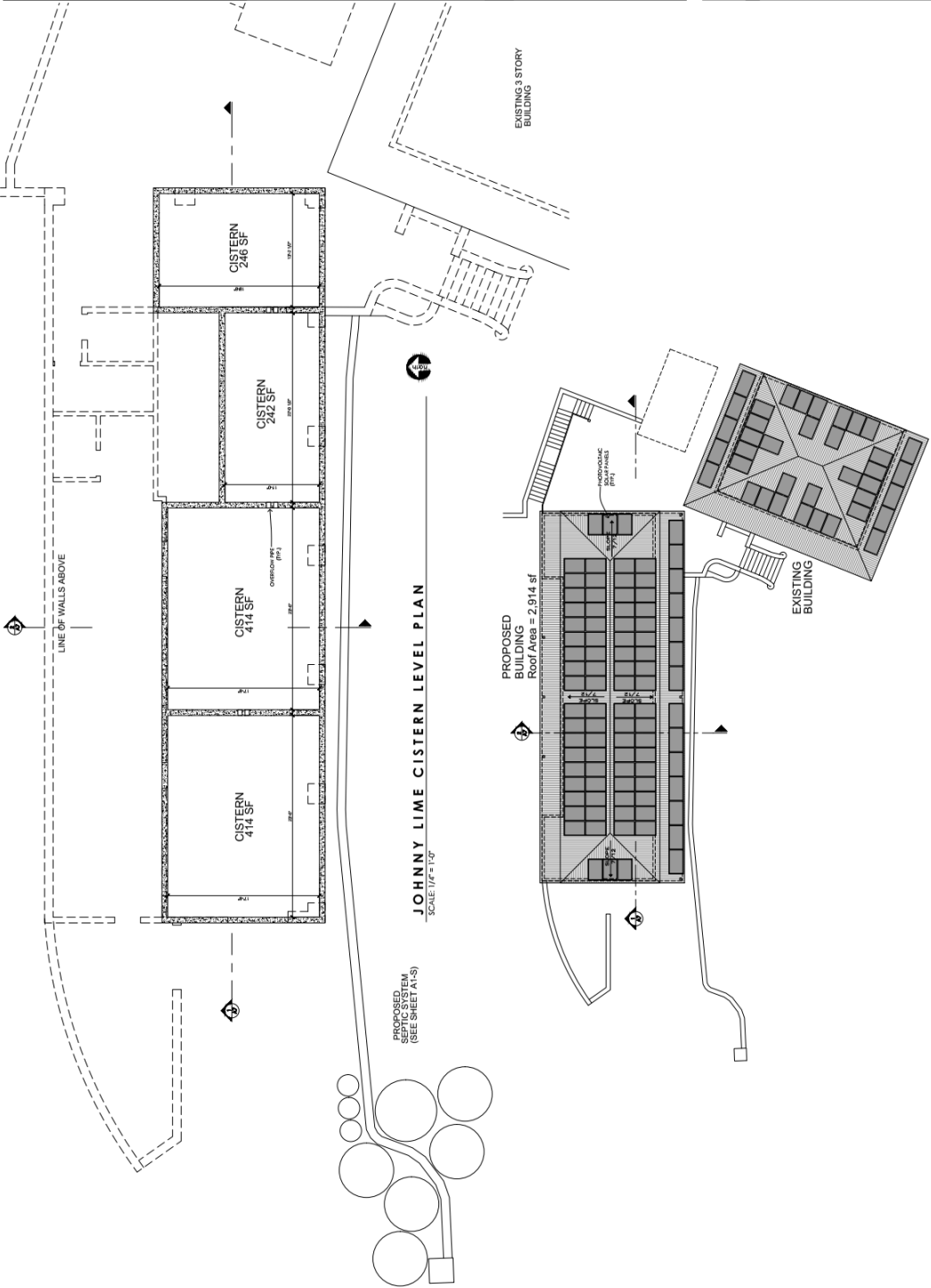
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CISTERN &
ROOF PLANS

DATE: 10.11.2021

DESIGNED:

A4



JOHNNY LIME ROOF PLAN
SCALE 1/8" = 1'-0"

JOHNNY LIME PROJECT

Parcel #8-1 Estate Emmaus
No. 2 Coral Bay Quarter
St John, USVI 00830

ST JOHN - USVI

PRELIMINARY
(NOT FOR
CONSTRUCTION)

PROJECT:
JOHNNY LIME
PROJECT
Parcel #8-1 Estate Emmaus
No. 2 Coral Bay Quarter
St John, USVI 00830

TITLE:
ELEVATIONS

DESIGNED BY: NAME: NAME
DATE: 02/23/2021
REVISIONS:

DATE: 02/23/2021
DESIGNED BY: NAME: NAME
DATE: 02/23/2021
REVISIONS:

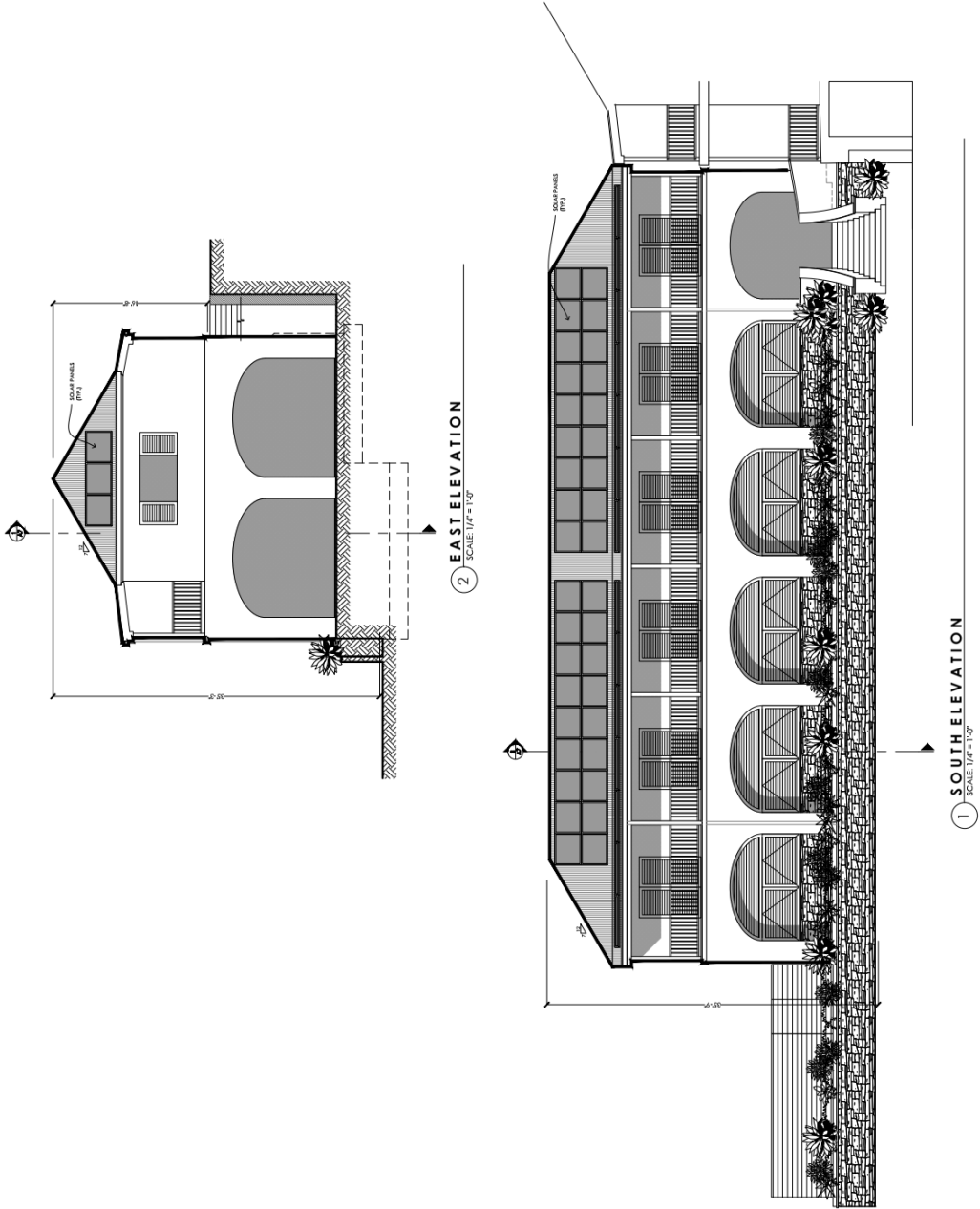
ST JOHN - USVI

PRELIMINARY
(NOT FOR
CONSTRUCTION)

PROJECT:
JOHNNY LIME
PROJECT
Parcel #8-1 Estate Emmaus
No. 2 Coral Bay Quarter
St John, USVI 00830

TITLE:
ELEVATIONS

DESIGNED BY: NAME: NAME
DATE: 02/23/2021
REVISIONS:



A5

DATE: 12/01/2021

DESIGN: 12/01/2021

STAMP: 12/01/2021

JOHNNY LIME PROJECT

Parcel #8-1 Estate Emmaus

No. 2 Coral Bay Quarter

St John, USVI 00830

CONTRACTOR:

MARK CROOK INC.

1000 Highway 100, Suite 100

St John, USVI 00830

Phone: (340) 223-1234

Fax: (340) 223-1235

Email: info@markcrook.com

Website: www.markcrook.com

ST. JOHN, USVI

PRELIMINARY

(NOT FOR CONSTRUCTION)

DESIGNER:

JOHNNY LIME PROJECT

Seagrape Equities, LLC

Parcel #8-1 Estate Emmaus

St John, USVI 00830

TITLE:

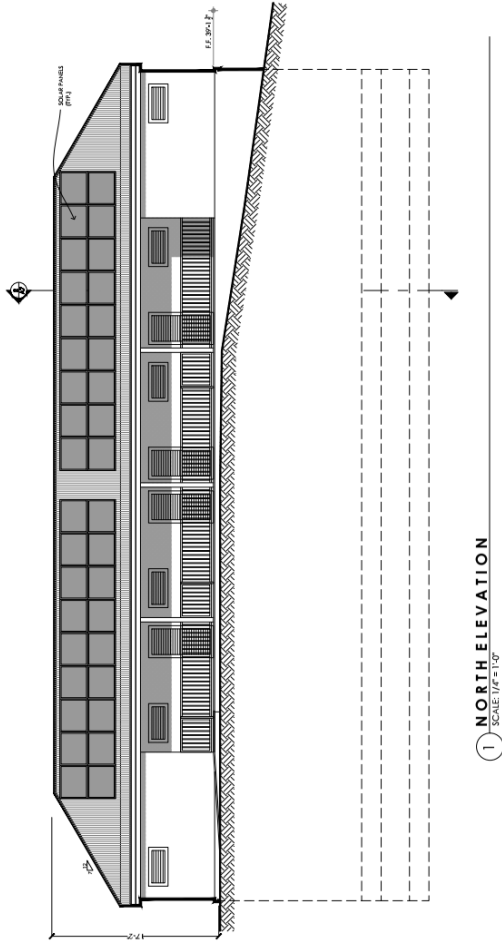
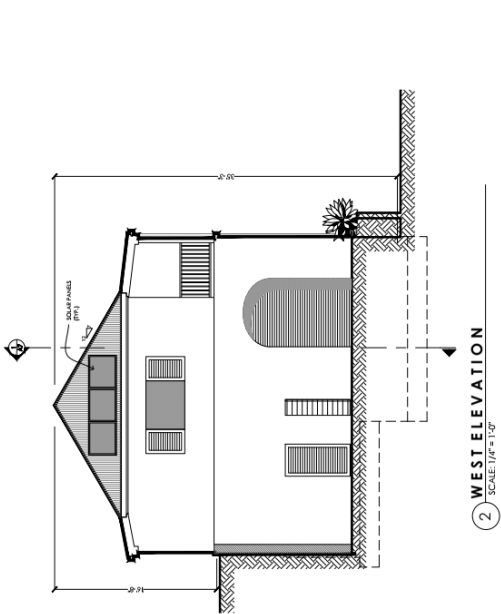
ELEVATIONS

DESIGNED BY: MWA

DATE: 03/23/2021

REVISIONS:

A6



STATUS

DESIGN

STUDY

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JOHNNY LIME PROJECT
Parcel #8-1 Estate Emmaus
No. 2 Coral Bay Quarter
St John, USVI 00830

ST. JOHN, USVI

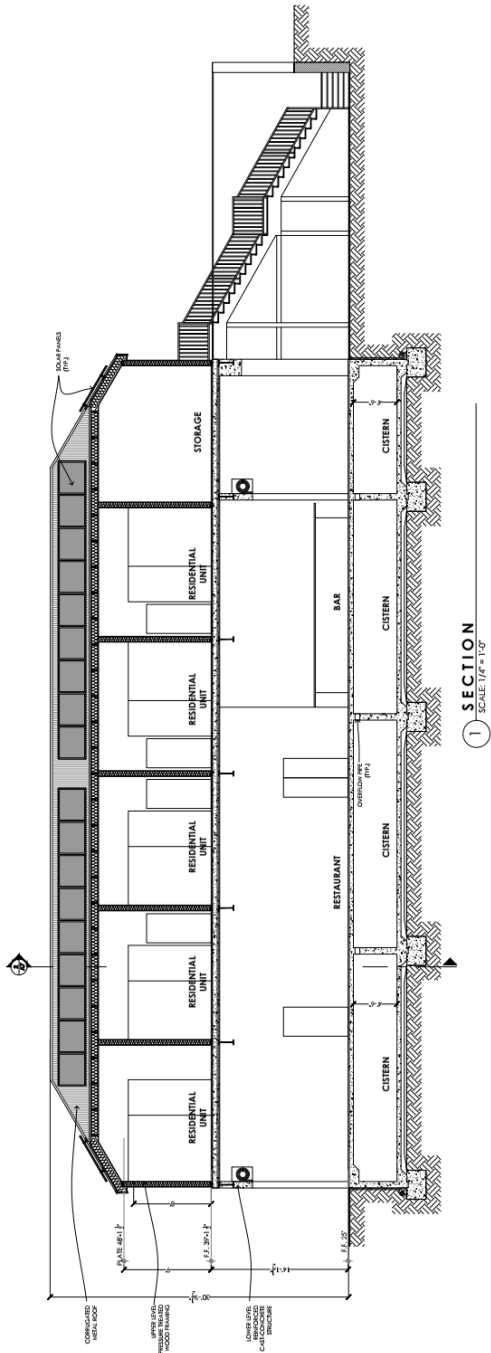
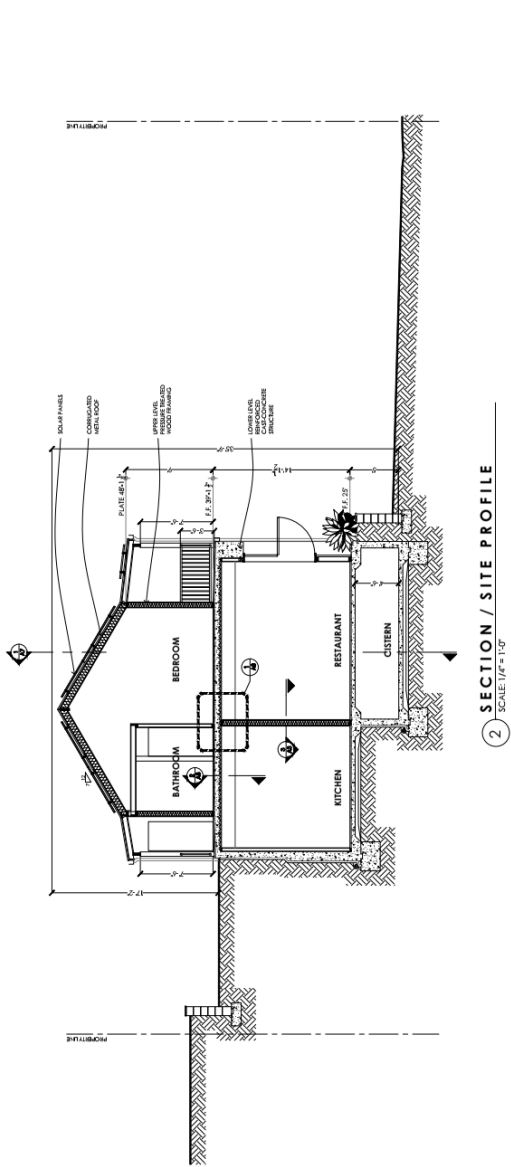
PRELIMINARY
(NOT FOR
CONSTRUCTION)

PROJECT
**JOHNNY LIME
PROJECT**
Parcel #8-1 Estate Emmaus
No. 2 Coral Bay Quarter
St John, USVI 00830

TITLE:
SECTIONS

DRAWN BY: MARK WALK
DATE: 02.03.2021
REVISIONS:

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5.02 Project Work Plan

The Sequence of major activities are as follows:

- Construct stabilized construction entrance
- Install silt fencing
- Hand clear construction area
- Excavate footings and cisterns
- Grade Parking and Service Areas
- Construct building foundations and Cisterns
- Construct Building
- Wastewater treatment system
- Complete parking areas
- Install permanent landscape and planting
- Remove erosion and sediment control and stabilize any area disturbed by their removal

6.0 ECOLOGICAL SETTING AND PROBABLE PROJECT IMPACT ON THE NATURAL ENVIRONMENT

6.01 Climate and Weather

Prevailing Winds

The Virgin Islands lie in the "Easterlies" or "Trade Winds" that traverse the southern part of the "Bermuda High" pressure area, thus the predominant winds are usually from the east-northeast and east (IRF, 1977). These trade winds vary seasonally and are broadly divided into 4 seasonal modes: 1) December to February; 2) March to May; 3) June to August; and 4) September to November. Below are the characteristics of these modes as taken from Marine Environments of the Virgin Islands Technical Supplement No. 1 (IRF, 1977).

December - February

During the winter, the trade winds reach a maximum and blow with great regularity from the east-northeast. Wind speeds range from eleven to twenty-one knots about sixty percent of the time in January. This is a period when the Bermuda High is intensified with only nominal compensation pressure changes in the Equatorial Trough. The trade winds during this period are interrupted by "Northerners" or "Christmas Winds," which blow more than twenty knots from a northerly direction in gusts from one to three days. Such outbreaks average about thirty each year. They are created by strengthening of high-pressure cells over the North American continent, which, in turn, allow weak cold fronts to move

southeastward over the entire Caribbean region. Intermittent rains, clouds and low visibility accompany these storms.

March - May

During the spring, the trade winds are reduced in speed and blow mainly from the east. Winds exceed twenty knots only thirteen percent of the time in April. The change in speed and direction is the result of a decrease of the Equatorial Trough.

June - August

Trade winds reach a secondary maximum during this period and blow predominantly from the east to east-southeast. Speeds exceed twenty knots twenty-three percent of the time during July. The trend for increasing winds results from the strengthening of the Bermuda High and a concurrent lowering of the pressure in the Equatorial Trough. Trade winds during this period are interrupted by occasional hurricanes.

September - November

During the fall, winds blow mainly from the east or southeast and speeds reach an annual minimum. Only seven percent of the winds exceed twenty knots in October. The low speeds result from a decrease in the Equatorial Trough. During this period, especially during late August through mid-October, the normal trade wind regime is often broken down by easterly waves, tropical storms and hurricanes.

Storm and Hurricane

There are numerous disturbances during the year, especially squalls and thunderstorms. These occur most frequently during the summer, lasting only a few hours and causing no pronounced change in the trade winds.

A tropical cyclone whose winds exceed 74 miles per hour is termed a hurricane in the northern hemisphere and may significantly affect the area. These hurricanes occur most frequently between August and mid-October with their peak activity occurring in September. The annual probability of a cyclone is one in sixteen years (Bowden, 1974). However, in September of 2017, the U.S. Virgin Islands was hit by two category 5 hurricanes within a span of 2 weeks.

Climate

The climate is maritime tropical and is characterized by generally fair weather, steady winds, and slight but regular annual, seasonal, and diurnal ranges in temperature. Rain-producing weather systems generally move into St. John from the east in summer and from the northwest in winter.

Major rainfall events are associated with weather systems that enhance the uplift of moist air in the region. Orographic lifting of moist air over hilly terrain is the most common cause of rainfall in St. John. The amount of rainfall increases with increasing elevation. The total annual rainfall differs

substantially at various locations throughout the island. Throughout the year, there are 156 rainfall days, and 49.69" (1262mm) of precipitation is accumulated. Leeward aspects receive greater amounts of rain because clouds develop over the slopes daily. In general, days have a higher incidence of rainfall than nights. St. John's wettest period generally is from September to November, and the driest period is from January to June. Occasionally, intense rainfall occurs during the drier period (USGS 1998).

The difference between the mean temperatures of the coolest and warmest month is only 5 to 7 °F. The highest temperatures occur in August or September and the lowest are in January or February. The highest average daytime temperature in the warmest months is about 88 ° F, and in the coolest months is in the low 80's. Nighttime lows are usually in the mid 70's during the warmer months and in the high 60's during the cooler months (USGS 1998).

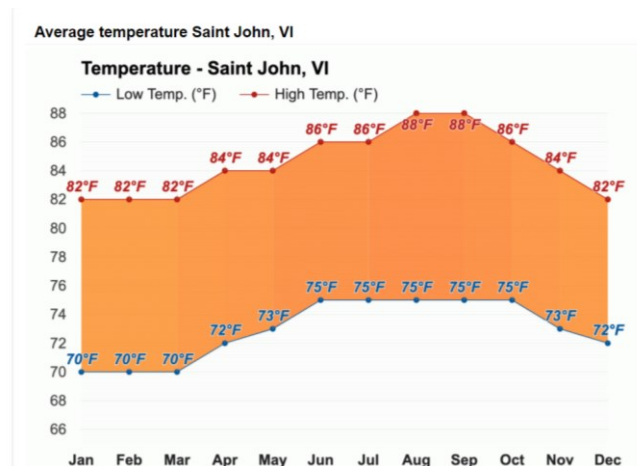


Figure 6.01.1 Average Temperature www.weather-us.com

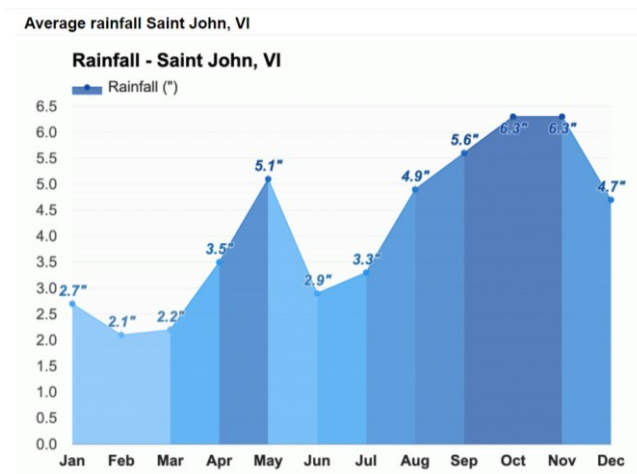


Figure 6.01.2 Rainfall St. John, U.S. Virgin Islands, www.weather-us.com

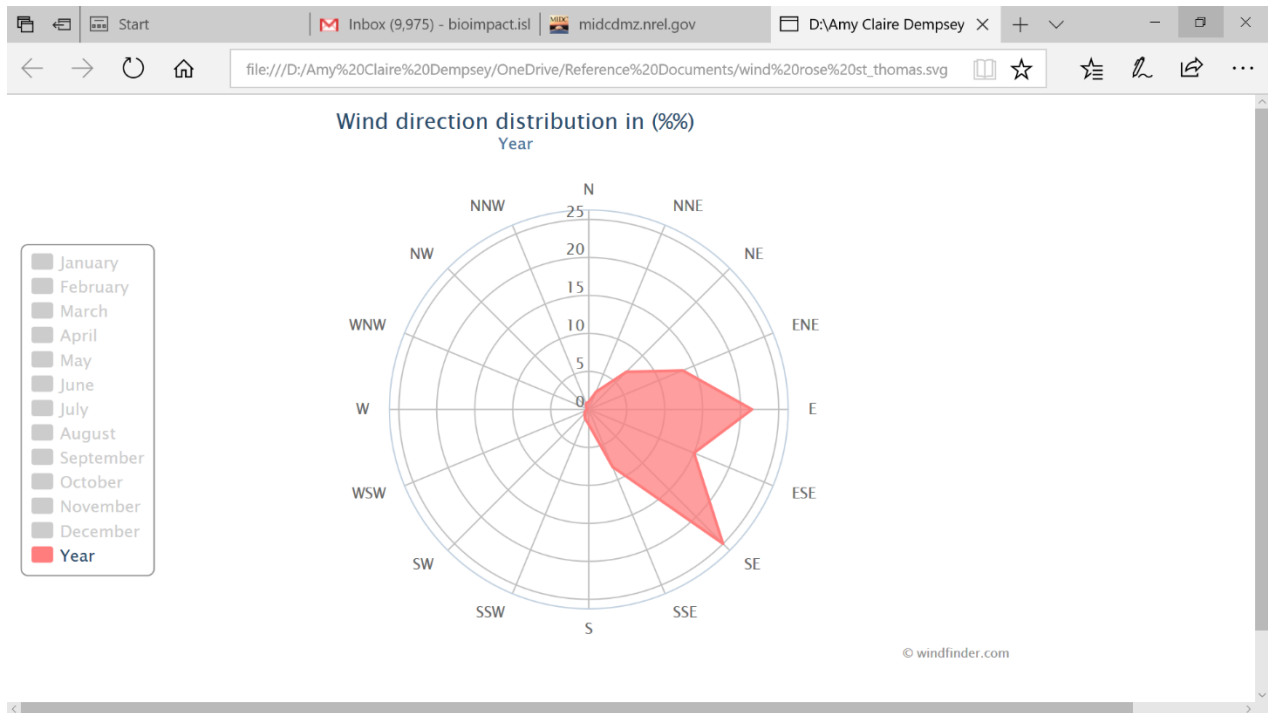


Figure 6.01.3. Windrose St. John, U.S. Virgin Islands Windfinder
(<https://www.windfinder.com/windstatistics/>)

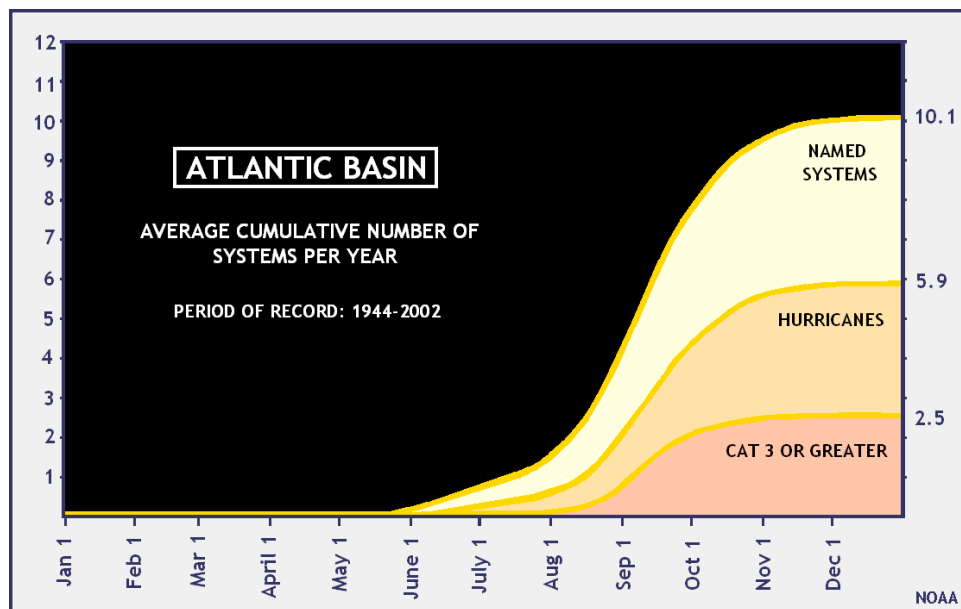
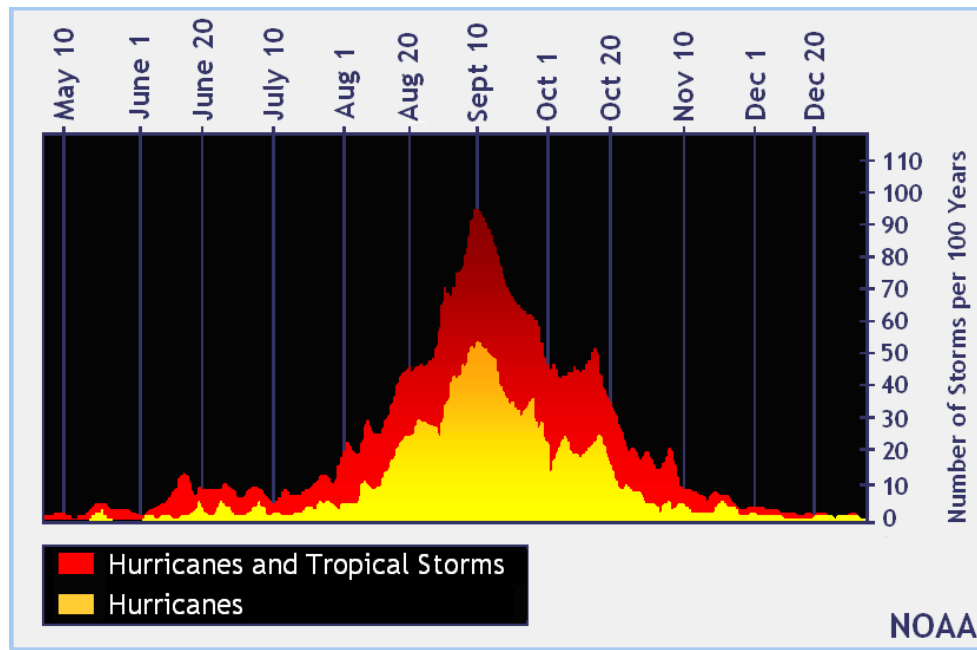
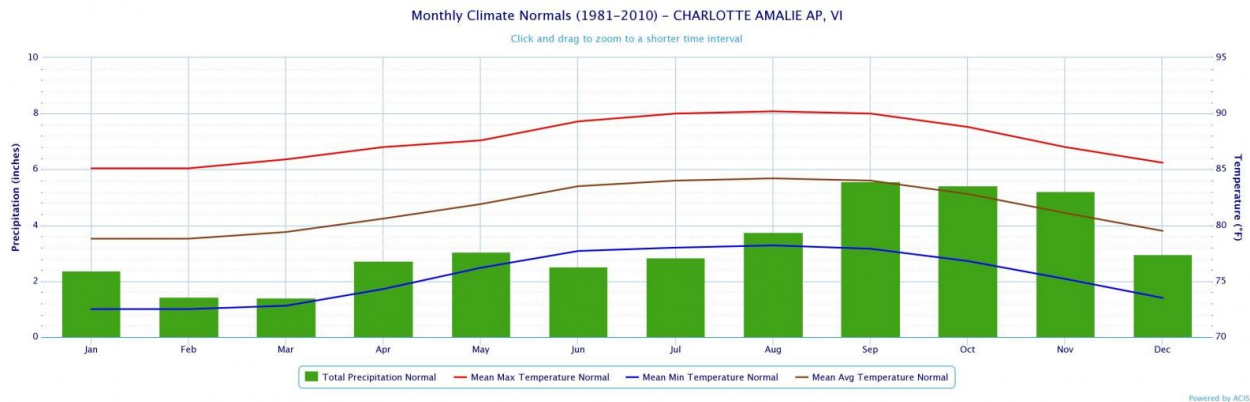


Figure 6.01.4 Tropical Cyclone Frequencies in the Atlantic (National Weather Service).



6.01.5 Tropical Storm and Hurricane Occurrences in the Atlantic (National Weather Service).



6.01.5 Climate Normal, National Weather Service

(http://www.weather.gov/sju/climo_pr_usvi_normals)

6.02 Landform, Geology, Soils and Historic Land Use

Geology of St. John

The Virgin Islands are near the northeastern corner of the present Caribbean Plate, a relatively small trapezoidal-shaped plate that is moving eastward relative to the North and South American continents carried on the American Plate. The arc of the Lesser Antilles is an active volcanic arc above a subduction zone in which the Atlantic oceanic crust of the American Plate is carried downward under the Caribbean Plate. The closest volcano to the Virgin Islands that is still active is Saba, about 160 km. to the east.

St. Thomas is composed of stratified volcanic and volcanoclastic rocks with minor limestone of the Early Cretaceous (Albian) to possibly the late Cretaceous Age (Donnelly 1966). These rocks are granitic composition, some of which may be as young as Tertiary (Kesler and Sutter, 1979). The oldest rocks of St. John are submarine lavas (keratophyre and spilite), beds of volcanic debris and chert. Associated intrusive rocks of the Water Island Formation are overlain by andesitic volcanic and volcanoclastic rocks of the Louisenhoj Formation which underlies the island of St. Thomas to the east and much of the northwestern portion of St. John. Donnelly (1966) suggested that the Louisenhoj Formation was deposited unconformably on the Water Island Formation after a period of emergence, tilting and erosion, on the slopes and environs of a subaerial volcanic island located roughly between St. Thomas and St. John, an area now occupied by Pillsbury Sound. The youngest layered deposits on St. Thomas are volcanoclastic rocks of the Tutu Formation. Fossils contained in the Tutu Formation suggest that those deposits are of the Early Cretaceous (Albian) Age (Donnelly et. al. 1971). It appears that all the volcanoclastic rocks of St. Thomas were deposited in a relatively short period of time spanning 10 to 15 million years approximately 100 million years ago (D. Rankin 1988).

An irregular coastline, numerous bays, steep slopes, and small drainage areas characterize St. John. For the most part, the topography is mountainous and coastal plains are absent.

Geology of the Project Site

Project site is on the northern shore of Coral Bay, approximately 350ft inland from the shore of Coral Harbor. The site has been graded and altered for the construction of the existing building, parking lot and patio. Along the roadway at the southern side of the site is graded and flat at an elevation of approximately 20ft. There is a retaining to the north of the parking lot and there is a level area at an elevation of approximately 30ft and then the site climbs quickly to the roadway at an elevation of more than 58ft over the last 25ft in the northeastern corner of the property.

Soils of Parcel 8-1 Estate Emmaus

Two soil type are present on the project site according to the Custom Soil Survey of the United States Virgin Islands. Southgate-Rock (**SrF**) outcrop complex, 40 to 60 percent slopes. These soils are found on mountain tops hillslopes, mountain slopes, and ridges and often have as much as 40% exposed rock outcroppings. This soil is located on the northern portion of the site and includes the area to the north of the parking area. The other soil type which is found along the roadway and parking lot is Victory-Southgate complex (**VsD**), 12 to 20 percent slopes, very stony. These soils are found on hillslopes and ridges and have paralithic bedrock between 20 to 40 inches and lithic bedrock 40 to 60 inches below the surface. Soil where present will be very gravelly loam. Soils are well drained.



Figure 6.02.3 USDA-NRCS Soils Map

Historic Use

The site was undeveloped and in use as pasture land in the 1950's. The winding roadway up the hillside was cut in the 1980's and the existing 3 story building was constructed between 1999 and 2002.



Northern Coral Harbor 1954

Adverse Site Conditions

The project site is in Zone X where flooding is not expected (Figure 6.02.4 Flood Insurance Rate Map, Panel 35 of 94, revised April 16, 2007).

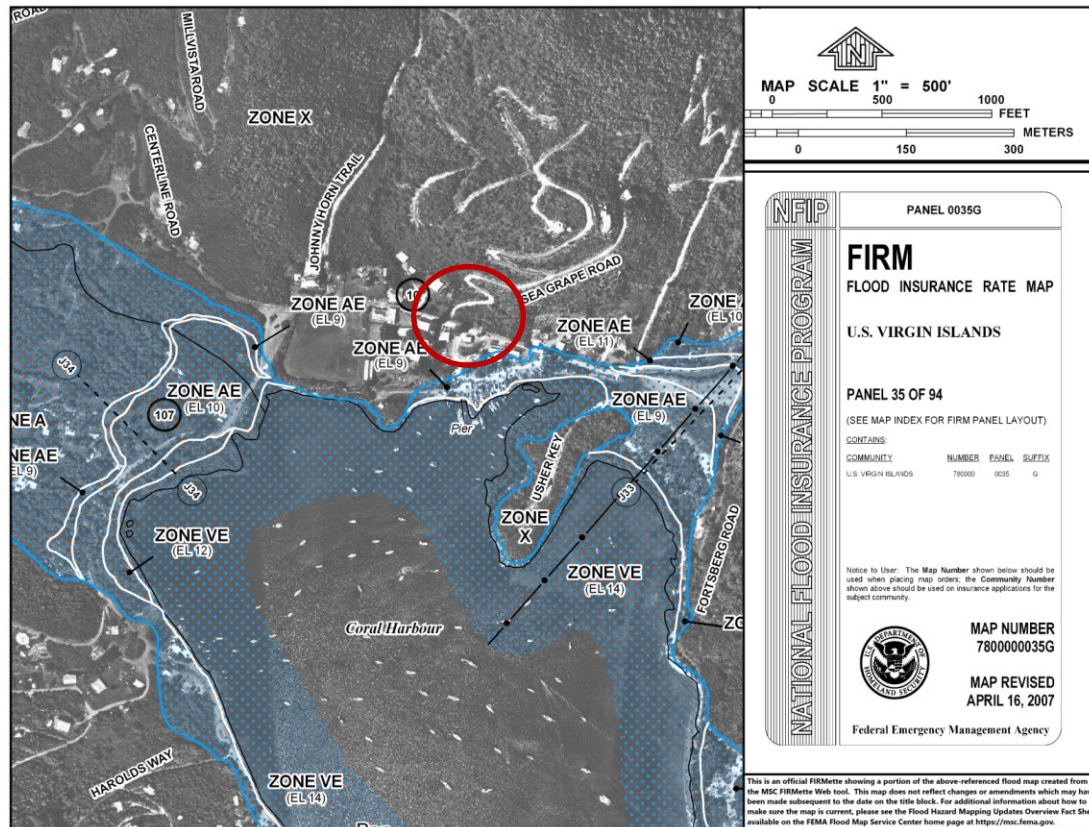


Figure 6.02.4 Flood Insurance Rate Map 35.

Seismic Activity

The U.S. Virgin Islands lie in one of the most earthquake prone areas of the world, and are susceptible to ground shaking, earthquake-induced ground failures, surface fault ruptures and tsunamis (tidal waves) (Hays, 1984). The activity is mostly associated with large-scale tectonic activity or faulting, originating in the Anegada Trough to the northeast of the islands. The trough and its related scarp apparently were thrown up by block faulting during the late Pliocene or early Pleistocene. It is oriented generally northeast to southwest, separating St. Croix from Puerto Rico and the other Virgin Islands. Based on willow focus earthquakes, the Anegada Fault Trough is estimated to be more than 400 miles in length. There are indications that strike slip movement is occurring, with St. Croix shifting northeast relative to Puerto Rico (Puerto Rico Water Authority 1970). Since the 1867 quake, there has been continuous low intensity activity all below 6.0 Richter.

Sea-level Rise

According to NOAA's Sea Level Rise Viewer, when sealevel rises as much as 4ft it will have a significant affect of on the adjacent property

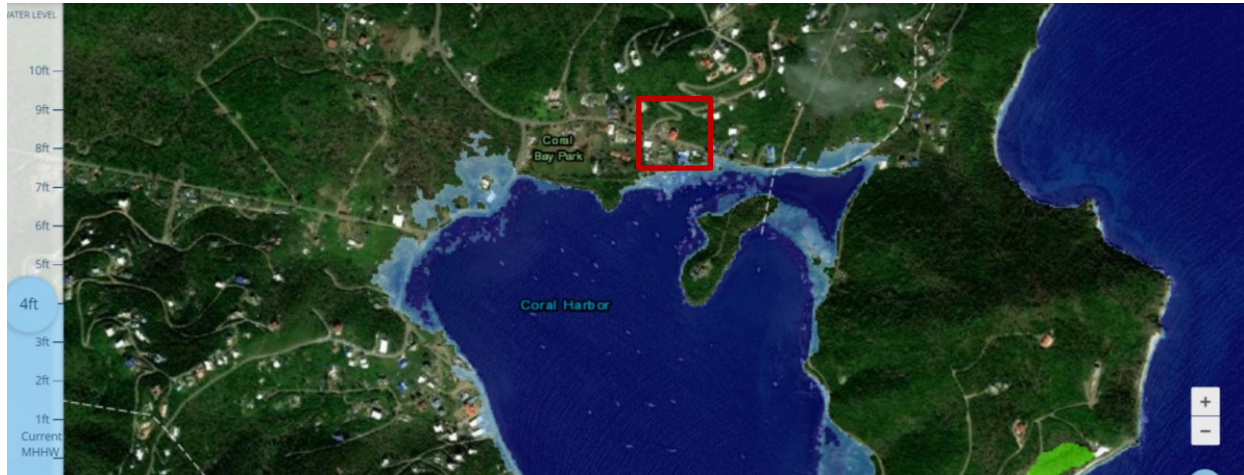


Figure 6.03.6 Sea Level Rise Map (<https://coast.noaa.gov/slr/#/layer/slr/4/-7231238.867507785/2076551.6197419522/15/satellite/none/0.56/2050/interHigh/midAccretion>)

The project site will not be affected by sea-level change.

Impact of Proposed Project

The site has already been altered during the development of the existing building. The proposed project will create additional changes on the site with cutting and grading and the construction of retaining walls. The total volume of 1,263cubic yards will be excavated as part of the project. The total area of site disturbance is 12,480 sq ft.

6.03 Drainage, Flooding and Erosion Control

6.03.a Existing Drainage Patterns

Stormwater current sheetflows to the south, and towards the roadway to the west.

6.03.b Proposed Alterations to Drainage Patterns

The project will alter the current drainage patterns on site and will be re-directed to drain efficient to match current dispersion pattern.

6.03.c Relationship of the Project to the Coastal Flood Plain

The project site is in Zone X where flooding is not expected (Figure 6.02.4 Flood Insurance Rate Map, Panel 35 of 94, revised April 16, 2007).

6.03.d Peak Storm Water Flow Calculations

The project will result in minimal changes to the the existing drainage patterns and will not create significant amounts of additional runoff.

6.03.e Existing Storm Water Disposal Structures

There are currently no storm water disposal structures on the site.

6.03.f Proposed Storm Water Control Facilities

No storm water control devices will be installed.

6.03.g Schedule of Maintenance of Storm Water Facilities

No storm water control devices will be installed.

6.03.h Proposed Method of Land Clearing

The construction area is limited and will be cleared by hand. Existing landscape plants and trees removed will be mulched and dispersed on site at appropriate landscaping areas. Landscape plants that will be retained where possible and protected.

6.03.i Provisions to Preserve Topsoil and Limit Site Disturbance

Site clearing will be limited to those areas which are necessary for the development of the new parking area, storage area, retaining wall and building. All excavated topsoil will be saved for landscaping on the site. Stock piled material will be surrounded by silt fencing.

6.03.j Presence and Location of Any Critical Areas and Possible Trouble Spots

The site is completely altered and no natural areas will be impacted.

The property is only 350ft from Coral Bay and therefore there is the potential for the introduction of elevated nutrient into the sea through waste water leaching. The proximity of the site to the sea also creates the potential of contaminants and nutrient reaching the site due to runoff.

In order to minimize potential impacts irrigation from the wastewater treatment will be at the farthest distance from the sea.

6.03.k Erosion and Sediment Control Devices to be Implemented

Silt fencing will be installed on the site prior to any site disturbance. The fencing will be re-enforced and will be properly toed in. A construction entrance will be constructed on the entrance into the upper portion of the site.

6.03.1 Maintenance of Erosion and Sediment Control Devices

The project site will be inspected for erosion issues daily and after rainfalls greater than 0.5 inches. A rain gage will be on site to measure rainfall amounts.

6.03.m Impacts on Terrestrial and Shoreline Erosion

The project site is not on the shoreline and will have no impact on shoreline erosion. The project has a minimal footprint and will not result in terrestrial erosion.

6.04 Fresh Water Resources

St. John's water resource are limited to a few wells scattered around the island, and intermittent and ephemera streams and ponds which dry up during periods of limited rainfall. Most of the potable water is either captured by rooftops and stored in cisterns or is desalinated seawater. The site will rely on roof catchment and cistern.

6.05 Oceanography

6.05.a Sea Bed Alteration

No alternation of the seabed is proposed.

6.05.b Tides and Currents

The Virgin Islands coastal areas are not subject to significant tidal ranges or tidal currents. Due to the small size of the islands, the sea flows around the island causing an average tidal height of only a few inches and maximum change of only a little over a foot. Only very narrow intertidal zones are found because of this lack of tidal amplitude and the steepness of the island rising out of the sea. The tides within Coral Bay are primarily semi-diurnal in nature, with two cycles of high and two of low water every 24 hours. The mean tides range from 0.72 feet to 0.9 feet and the spring tidal ranges reach up to 1.3 feet (IRF 1977).

ST JOHN'S ISLAND, CORAL HARBOR, VI - Station ID: 9751373

Established:	Feb 21, 1983
Time Meridian:	60° W
Present Installation:	Feb 21, 1983
Date Removed:	1983-06-04 23:59:00.0
Water Level Max (ref MHHW):	N/A
Water Level Min (ref MLLW):	N/A
Mean Range:	0.72 ft.
Diurnal Range:	0.9 ft.
Latitude	18° 20.9 N
Longitude	64° 43.0 W
NOAA Chart#:	25641
Met Site Elevation:	N/A

Table 6.01.1 ST JOHN'S ISLAND, CORAL HARBOR, VI - Station ID: 9751373

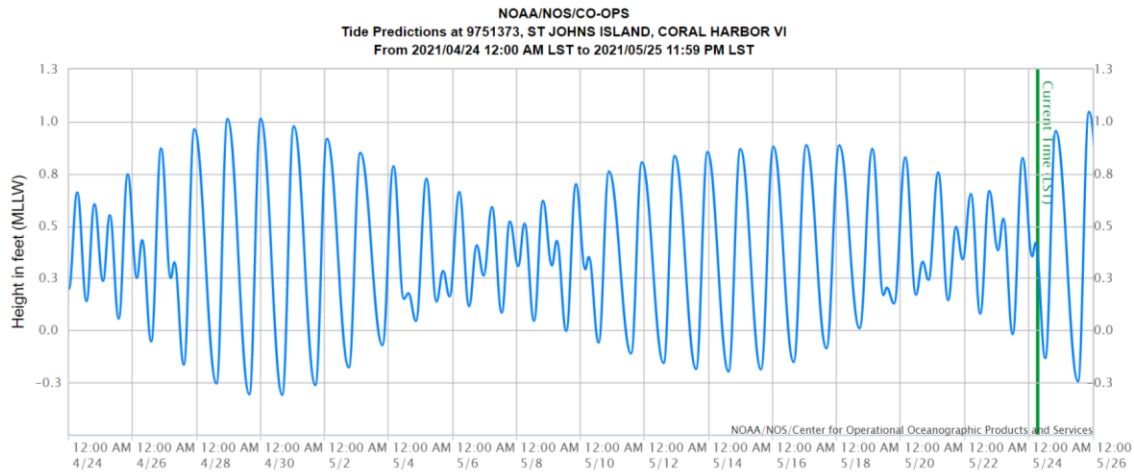


Figure 6.05.1 Tides in Coral Harbor, St. John

Currents

The surface currents throughout the Caribbean are driven by the North Equatorial Current that runs through the islands west-northwest and then joins the Gulf Stream (Figure 6.05.2). These currents change very little from season to season with the currents coming more from the south during the summer months. Because of the shallowness of the Caribbean basin (less than 1000m), mainly surface water from the Atlantic flows through the islands. The westerly drift of the Caribbean current sweeps between St. John and Norman Island from the Southeast, seeking a way North through the barrier set up by the scattered islands and cay to discharge along the North Shore of St. John to the east and then out into the Atlantic east between the British Islands(Figure 6.05.3). Currents off the south side of St. John average 0.7 knots 23 percent of the time. Surface currents in Coral Harbor are primarily driven by wind and wave approach and moved in a counterclockwise direction around the basin. Currents at depth were found to travel in both a westerly and easterly direction likely reflecting the tidal influence near the sea floor

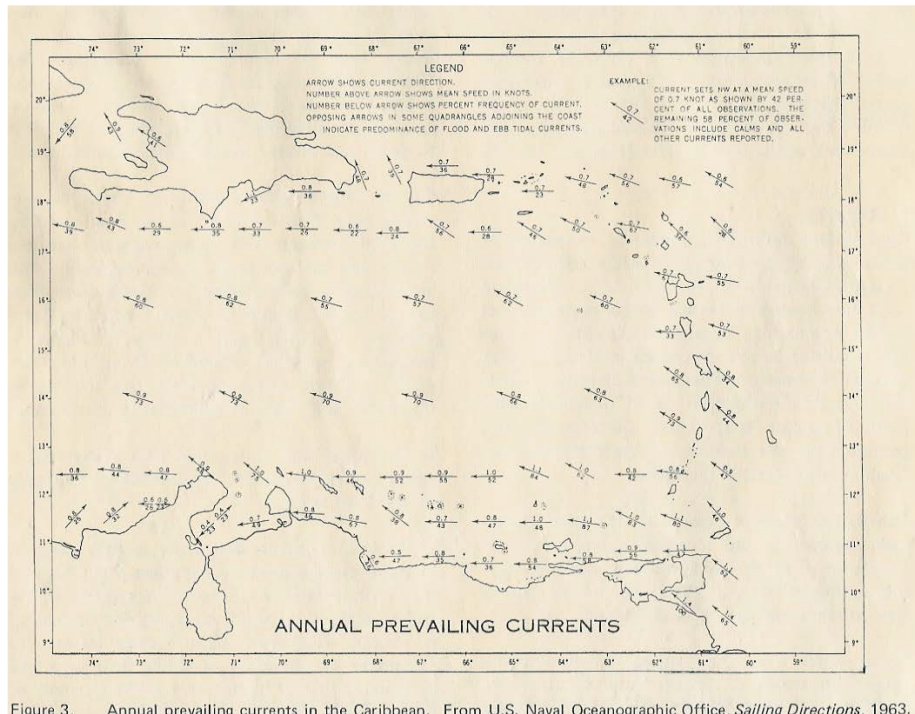


Figure 6.05.2 Annual Prevailing Currents in the Caribbean

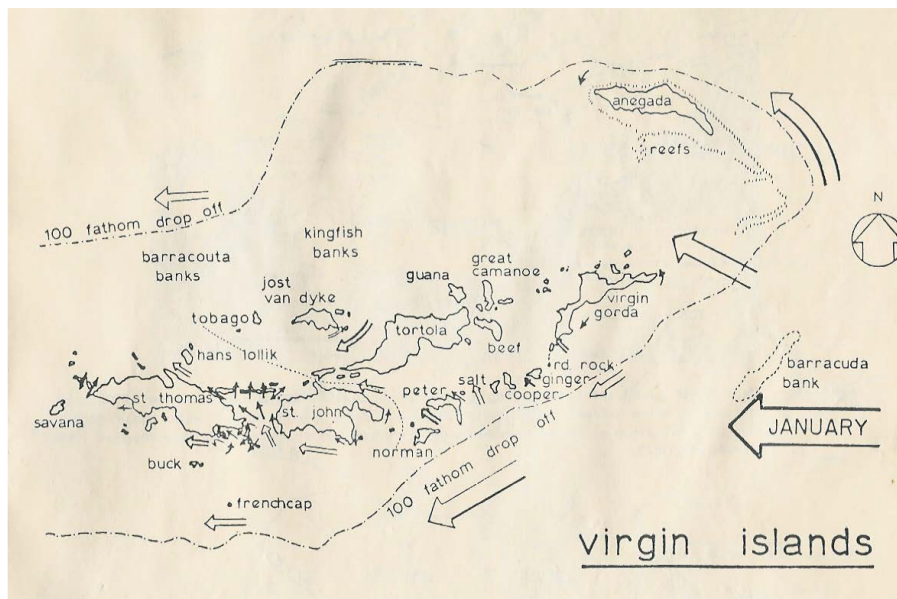


Figure 6.05.3 Currents in the Virgin Islands

6.05 C Waves and Wind Impacts

Deep water waves around St. John are primarily driven by the northeast trade winds that blow for the majority of the year. Waves generally range from 1 to 3 ft in height and are predominantly from the east. Larger waves from the southeast, approximately 1 to 12 feet in height, may occur in late summer and fall when trade winds blow from the east or with the passage of tropical storms and hurricanes to the south of the island. Based on the orientation of Coral Bay and the protection by the outlying Cays, the shoreline to the 350ft to the south is very well protected and has a limited fetch.

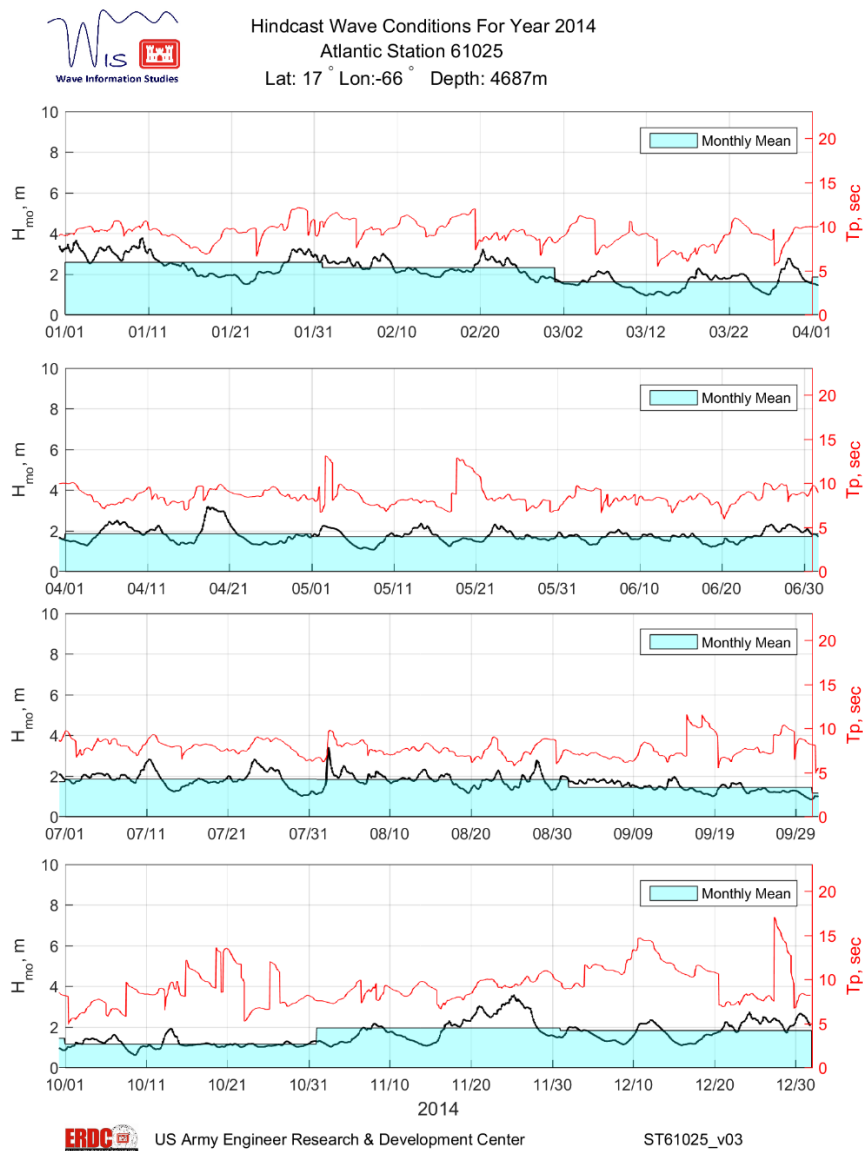
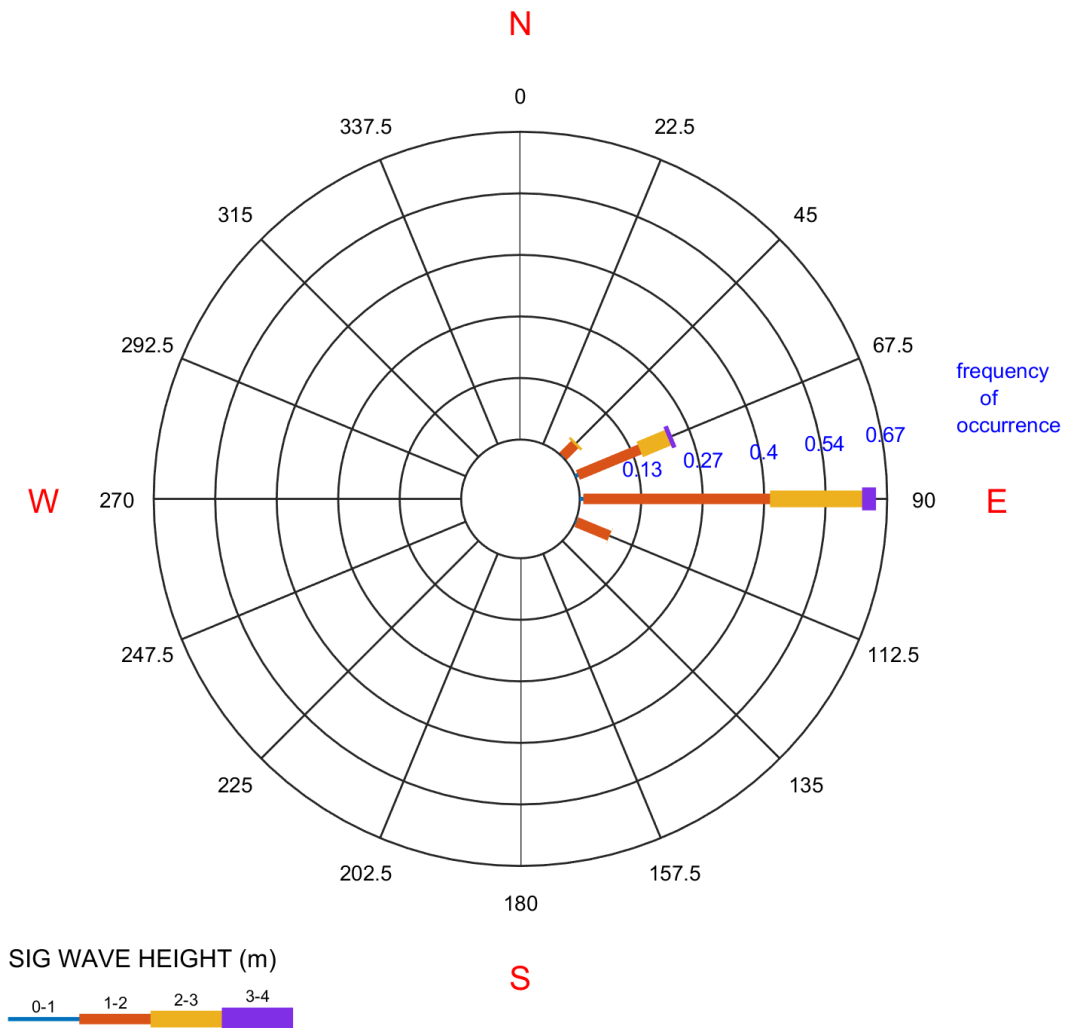


Figure 6.05.1 Significant wave height, ERDC, USACE WIS,
(http://wis.usace.army.mil/data/atl/onlns/2014/stplots/TimePlt_ST61025_2014.png)



Atlantic WIS Station 61025
ANNUAL 2014
Long: -66° Lat: 17° Depth: 4687 m
Total Obs : 8756
WAVE ROSE



US Army Engineer Research & Development Center

ST61025_v03

Figure 6.05.2 Wave Rose Station 61025 (most direct approach to Coral Bay) USACE WIS
(http://wis.usace.army.mil/data/atl/onlins/2014/stplots/TimePlt_ST61025_2014.png)

6.05D Marine Water Quality

The water in the Coral Bay project area on St. John is classified as “Class B Waters.” Class B Waters requires that water quality criteria allow “for maintenance and propagation of desirable species of aquatic life (including threatened, endangered species listed pursuant to section 4 of the federal Endangered Species Act and threatened, endangered and indigenous species listed pursuant Title 12, Chapter 2 of the Virgin Islands Code) and for primary contact recreation (swimming, water skiing, etc.). This Class allows minimal changes in structure of the biotic community and minimal changes in ecosystem function. Virtually all native taxa are maintained with some changes in biomass and/or abundance; ecosystem functions are fully maintained within the range of natural variability.” Water quality criteria for Class B waters are listed below. The project site is within the Coral Bay Watershed, encompasses a total of some 3,003 total upland acres.

Water Samples were taken within Coral Bay in association with the proposed Marina at Summers End Project in 2016 - 2017. These results shown below in Table 6.05.2 show an area of variable water quality with turbidities often elevated and seldom below 1NTU.

ENVIRONMENTAL ASSESSMENT REPORT FOR SEAGRAPE EQUITIES, DBA JOHNNY LIME, LLC
ESTATE EMMAUS PARCEL #8-1

DATE	Location	Depth	DO (mg/L)	pH (s.u.)	Turbidity (NTU)	NOTES
June-17	18° 20.555'N	0.5m	6.16	8.19	1.9	
	64° 42.804'W	0.5m from B	6.14	8.19	1.8	
	18° 20.598'N	0.5m	6.08	8.11	1.6	
	64° 42.824'W	0.5m from B	6.14	8.11	1.5	
	18° 20.555'N	0.5m	6.01	8.10	1.6	
May-17	64° 42.804'W	0.5m from B	6.18	8.10	1.7	
	18° 20.555'N	0.5m	5.67	8.17	2.8	0.75" rain
	64° 42.804'W	0.5m from B	5.46	8.17	2.7	
	18° 20.598'N	0.5m	5.58	8.15	4.3	
	64° 42.824'W	0.5m from B	5.56	8.19	4.3	
April-17	18° 20.555'N	0.5m	5.56	8.13	3.3	
	64° 42.804'W	0.5m from B	5.49	8.13	2.9	
	18° 20.555'N	0.5m	5.72	8.18	1.9	25kts SE
	64° 42.804'W	0.5m from B	5.82	8.18	1.9	
	18° 20.598'N	0.5m	5.71	8.16	2.5	
March-17	64° 42.824'W	0.5m from B	5.70	8.16	2.6	
	18° 20.555'N	0.5m	5.70	8.16	3.1	
	64° 42.804'W	0.5m from B	5.72	8.16	3.6	
	18° 20.555'N	0.5m	5.69	8.11	3.1	
	64° 42.804'W	0.5m from B	5.72	8.11	3.7	
September-16	18° 20.598'N	0.5m	5.81	8.13	2.9	
	64° 42.824'W	0.5m from B	5.92	8.13	2.9	
	18° 20.555'N	0.5m	5.79	8.16	3.4	
	64° 42.804'W	0.5m from B	5.81	8.16	3.3	
	18° 20.555'N	0.5m	5.99	8.19	2.2	
August-16	64° 42.804'W	0.5m from B	5.98	8.19	2.0	
	18° 20.598'N	0.5m	5.26	8.11	1.5	
	64° 42.824'W	0.5m from B	5.37	8.15	1.5	
	18° 20.555'N	0.5m	5.62	8.14	2.2	
	64° 42.804'W	0.5m from B	5.61	8.14	2.1	
July-16	18° 20.555'N	0.5m	5.70	8.12	4.3	1" rain
	64° 42.804'W	0.5m from B	5.72	8.12	4.3	
	18° 20.598'N	0.5m	6.14	8.01	5.4	
	64° 42.824'W	0.5m from B	6.14	8.01	5.7	
	18° 20.555'N	0.5m	5.92	8.13	6.3	
June-16	64° 42.804'W	0.5m from B	5.93	8.13	6.3	
	18° 20.555'N	0.5m	5.92	8.19	1.3	
	64° 42.804'W	0.5m from B	5.69	8.19	1.1	
	18° 20.598'N	0.5m	6.03	8.14	1.1	
	64° 42.824'W	0.5m from B	6.05	8.17	1.7	
May-16	18° 20.555'N	0.5m	6.05	8.15	1.7	
	64° 42.804'W	0.5m from B	6.05	8.10	1.7	
	18° 20.555'N	0.5m	5.75	8.16	4.3	1" rain
	64° 42.804'W	0.5m from B	5.76	8.16	4.3	
	18° 20.598'N	0.5m	6.13	8.12	3.0	
February-16	64° 42.824'W	0.5m from B	6.01	8.12	3.1	
	18° 20.555'N	0.5m	5.78	8.11	4.3	
	64° 42.804'W	0.5m from B	5.79	8.11	4.3	
	18° 20.555'N	0.5m	5.75	8.14	1.0	
	64° 42.804'W	0.5m from B	5.80	8.14	1.1	
January-16	18° 20.598'N	0.5m	5.86	8.12	1.3	
	64° 42.824'W	0.5m from B	5.78	8.11	1.2	
	18° 20.555'N	0.5m	5.88	8.14	0.8	
	64° 42.804'W	0.5m from B	5.62	8.14	0.8	
	18° 20.555'N	0.5m	5.84	8.13	1.5	
December-16	64° 42.804'W	0.5m from B	5.86	8.13	1.5	
	18° 20.598'N	0.5m	6.01	8.13	1.8	
	64° 42.824'W	0.5m from B	6.07	8.13	1.7	
	18° 20.555'N	0.5m	5.92	8.13	2.3	
	64° 42.804'W	0.5m from B	5.95	8.13	2.5	
November-16	18° 20.555'N	0.5m	5.94	8.11	1.3	
	64° 42.804'W	0.5m from B	5.86	8.11	1.7	
	18° 20.598'N	0.5m	5.70	8.18	1.5	
	64° 42.824'W	0.5m from B	5.75	8.18	1.6	
	18° 20.555'N	0.5m	5.84	8.18	1.2	
October-16	64° 42.804'W	0.5m from B	5.96	8.18	1.2	
	18° 20.555'N	0.5m	5.67	8.17	0.9	
	64° 42.804'W	0.5m from B	5.66	8.17	0.9	
	18° 20.598'N	0.5m	5.81	8.12	0.9	
	64° 42.824'W	0.5m from B	5.84	8.12	0.9	
September-16	18° 20.555'N	0.5m	5.99	8.21	1.2	
	64° 42.804'W	0.5m from B	6.01	8.19	1.2	

Impact of the Proposed Project

The project is not located directly on the water and will only have the potential of affecting water quality through runoff or leaching. Due to the rockiness of the soil it will be important to minimize potential seepage by irrigating and leaching waste water effluent as far from the sea as possible in areas which have the ability to absorb the nutrients.

During construction, if sedimentation and erosion control measures are well maintained there should be no impact on marine water quality.

6.06 Marine Resources and Habitat Assessment

The project site is not located on the water but does have the potential to effect offshore areas through sedimentation and erosion and introduction of nutrients due to leaching. The shoreline has been significantly altered in the past and the site is heavily used for vessel mooring and vessel maintenance activities occur along the shoreline.

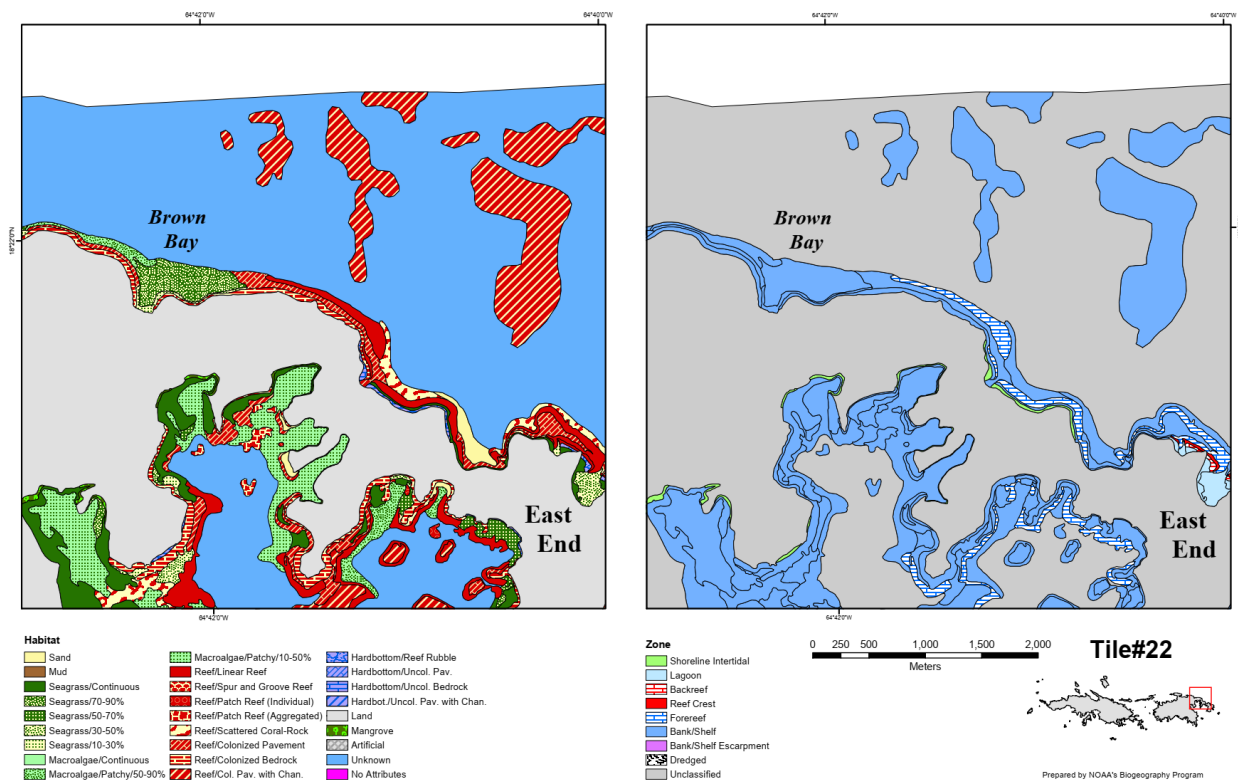


Figure 6.06.1 NOAA Benthic Habitat Map Tile #22

Coral Harbor has been studied numerous times in the last 10 years with major development applications for marinas in both the northern and southern side of Coral Harbor. The benthic community consists of mixed seagrass species, *Thalassia testudinum*, *Syringodium filiforme* and *Halodule wrightii*,

abundant macro-algae and in recent years an abundance of the invasive seavine *Halophila stipulacea*. The benthic community is highly impacted by vessel mooring and by terrestrial runoff carrying sediments and nutrients.

The NOS Benthic Habitat Map shown above shows the area as a mix of continuous seagrass beds as well as 50-70% coverage seagrass beds. The Submerge Aquatic Vegetative (SAV) is fairly accurate, however a significant portion of the SAV is macro-algae and the invasive seavine.



Halophila stipulacea and garbage – *Thalassia testudinum* and an anchor scar – *H.stipulacea* and *T. testudinum*.

Impact of the Proposed Project

The project should have a negligible impact on the marine environment offshore. The project has incorporated sediment and erosion control which should reduce runoff and sedimentation coming from the site. Waste water effluent will be irrigate with as far inland as possible on the property.

6.07 Terrestrial Resources

The site has been highly altered and the only natural vegetation that remaining is that on the surrounding slopes which are beyond the existing fence line and outside the area of development. No large or native trees will be removed as part of the development. All trees within the yard are landscape species. These include seagrapes (*Cocoloba uvifera*), Bismark palms (*Bismarckia nobilis*), MacArthur palms (*Ptychosperma macarthurii*), Bougainvillea glabra, Indian rubber vine (*Cryptostegia grandiflora*), spider lilies (*Hymenocallis caribaea*), aloe, *Agave sp.* and a royal palm (*Roystonea borinquena*).

There are number of dead herbeacous plants in and out of the fenceline.

Outside the fence line there are some oppuntistic species which have colonized the roadside; physicnut (*Jatropha curcas*), tan-tan (*Leucaena leucocephala*), casha (*Acacia tortuosa*), beggars tick (*Bidens pilosa*), and a variety of grasses. There is also a *Solanum conocarpum* along the roadside.

Beyond the fence line is a turpentine tree (*Bursera simaruba*), *Acacia macracantha* and pigeon berry (*Bourreria succulenta*).

The site has been cut and graded and there is a graveled drive into the site above the small retaining wall, and a patio on to the grade area. There is a concrete roadway which extends up the steep

hill to the west and north side of the property. There is exposed loose rocks on the top and base of the steep slope.



Overgrown gravel drive into the property above the small retaining wall. There are dead plants on the left north of the drive and a row of seagrapes on the upper side of the retaining wall.



There are planted palms, bougainvillea, and aloe within the yard.



Outside the wire fence are opportunistic species including a *Solanum conocarpum*.

Impact of Development

All work will occur within the fence line and the only species that be impacted are landscaped species...

6.08 Wetlands

The U.S. Army Corps of Engineers defines wetlands as "those areas that are periodically inundated or saturated by surface or groundwater at a frequency and duration sufficient to support and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, bogs, marshes and similar areas." (U.S. Army Corps of Engineers, 1986).

There are no terrestrial wetlands within the proposed project site.

6.09 Rare and Endangered Species

There are three endangered plants which are known to occur in the Coral Bay area of St. John, *Calyptanthus thomasiona*, *Solanum conocarpum* and *Zanthoxylum thomasionum*. A *S. conocarpum* occurs outside the fence line and will not be impacted.



Figure 6.09. Location of *Solanum conocarpum* outside the fenceline.

There are ESA listed species in the surrounding marine environment, but the project should have a negligible impact on the marine environment offshore if proper sedimentation and erosion is maintained at the site. And leaching of nutrients from waste water effluent into the water column is minimized.

6.10 Air Quality

All of St. John and St. Thomas is designated Class II by the Environmental Protection Agency in compliance with National Ambient Air Quality Standards. In Class II air quality regions, the following air pollutants are regulated: open burning, visible air contaminants, particulate matter emissions, volatile petroleum products, sulfur compounds, and internal combustion engine exhaust (Virgin Islands Code Rules and Regulations).

There will be a slight increase in air emissions during the use of heavy equipment for grading and excavation. Once the excavation and grading is completed, the project will have a negligible impact on air quality. During construction dust abatement will be implement.

The property will have diesel backup power generation and when in use will result in a short term increase in emission.

7.0 IMPACT OF THE PROPOSED PROJECT ON THE HUMAN ENVIRONMENT

7.01 Land and Water Use Plans

The property is zoned B-3, Business – Scattered Zone. Residential, commercial and restaurant use are allowable in the B-3 zone. There development will not change the current use from commercial and residential.

7.02 Visual Impacts

The site is already developed and has an existing three story building. The development will increase the density on the site, but will not change visual character.

7.03 Impacts of Public Services and Utilities

7.03.a Water

The project will use roof catchment and cisterns to meet is potable water demands. The catchment area for the new roof will be 2,914sf and the required cistern capacity will be 43,710 gallons the cistern capacity will be 44,302.48 gallons. When rainfall is insufficient to meet potable water needs water will be purchased.

7.03.b Sewage Treatment and Disposal

The restaurant wastewater treatment is a self-contained, extended aeration, aerobic treatment system utilizing the activated sludge process. This wastewater treatment is custom engineered to address the special needs of a restaurant. The effluent will be discharged into an engineered leach field in the northern portion of the site.

The residential wastewater treatment will be an efficient prefabricated Hydro-Action 500gpm 3 tank wastewater treatment system and the effluent will be used for watering the landscape.

7.03.c Solid Waste Disposal

A trash receptacle will be provided and refuse will be collected by private hauler and disposed of at the Bovoni Landfill.

7.03d Roads, Traffic and Parking

The property is located on St. John's East End Road. The property will include a restaurant with an occupancy of 60 persons which will require 6 parking spaces, and 3 parking spaces for employees. The building will have 5 residential units which will require 5 spaces. The existing building has 2 offices (2 spaces) and 3 residential units (3 spaces). A total 19 spaces will be required and 19 spaces will be provided. A parking attendant will be available during all hours the restaurant is open.

7.03.e Electricity

The power will be provided by the existing overhead lines VI WAPA lines. The project will be adding a solar array, battery bank and generator power in a system that will maximize passive power generation. The photovoltaic system will be placed on the roofs.

The mechanical room will be on the lowest floor of the existing building and designated as the storage room for all mechanical equipment associated with the photovoltaic system.

7.03.f Schools

The construction of a combination commercial and residential will have a negligible impact on schools. The employees will come from the local labor force and their children are already attending local schools.

7.03.g Fire and Police Protection

The existing fire and police protection should be sufficient to service the new building. The construction of the new building should not put a strain on those resources.

7.03.h Health

The construction of the new building will have a negligible impact on the public health system. The employees will come from the local labor force and are already being provided care by the public health system.

7.04 Social Impacts

The restaurant and short term residential units will provide jobs for local residents. The restaurant will also be purchasing produce and fish from local farmers and fishermen.

7.05 Economic Impacts

The project will contribute to the local economy by providing jobs and through the procurement of goods from local farmers and fishermen.

7.06 Impacts on Historical and Archaeological Resources

The site has been completely altered from its natural state and there are no areas of the site which have not been previously graded. Any historical or archaeological resource would have been destroyed by the previous earth work. A letter has been written requesting a clearance letter has been submitted to SHPO.

7.07 Recreational Use

The project site is currently in commercial use and no recreational activities occur in the area.

7.08 Waste Disposal

All the project related construction debris will be properly disposed of at the Bovoni Landfill. The buildings will have a trash receptacle and refuse will be collected and taken by private hauler to the Bovoni Landfill.

7.09 Accidental Spills

It is anticipated that the project will have a 15kv backup diesel generator which will have selfcontained storage tank. The tank will be double walled and will be placed on concrete with adequate secondary containment. A small spill kit will be kept by the generator in case of spillage during filling or operations.

7.10 Potential Adverse Effects that Can Not be Avoided

Because of the existing condition of the site there are no terrestrial impacts to native species, the one endangered plant which lies immediately along the roadway will be marked and will not be impact. Impacts to the marine environment should be negligible due to the installation of the stormwater control ponds and other erosion control.

8.00 MITIGATION PLANS

The ESA listed *S. conocarpum* will be marked and protected during construction.

9.0 ALTERNATIVES TO PROPOSED ACTION

The property could be left as it is and there would be no change in impact. The proposed project will have negligible impacts. The existing building could be torn down and a larger building could be built on the property. This would require more earth work and would have a greater potential for environmental impact.

10.0 RELATIONSHIP BETWEEN SHORT AND LONG TERM USES OF MAN'S ENVIRONMENT

The construction of a new residential and commercial building in an area which has already been altered from its natural state is the best short-term use of man's environment. Using developed area to build new economic ventures is the best long-term use of the environment.

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APPENDIX I
